

A. Cover Sheet (Attach to front of proposal.)

1. Specify: ☒ agricultural project or ☐ urban project
- ☐ individual application or ☐ joint application

2. Proposal title—concise but descriptive: _____

3. Principal applicant—organization or affiliation: Stevinson Water District

4. Contact—name, title: Robert D. Kelley, Jr., President

5. Mailing address: P.O. Box 818, Newman, CA 95360

6. Telephone: (209) 634-4908

7. Fax: (209) 634-2601

8. E-mail: kfklaw@inreach.com

9. Funds requested—dollar amount: \$ 41,750.00

10. Applicant cost share funds pledged—dollar amount: \$ 41,750.00

11. Duration—(month/year to month/year): June 2001 to November 2001

12. State Assembly and Senate districts and Congressional district(s) where the project is to be conducted:
Dennis Cardoza, District 26
Dick Monteith, District 12

13. Location and geographic boundaries of the project: Confluences San Joaquin and Merced Rivers

14. Name and signature of official representing applicant. By signing below, the applicant declares the following:
- the truthfulness of all representations in the proposal;
 - the individual signing the form is authorized to submit the application on behalf of the applicant;
 - the applicant will comply with contract terms and conditions identified in Section 11 of this PSP.

Robert D. Kelley, Jr.
(printed name of applicant)

Robert D. Kelley
(signature of applicant)

2/12/01
(date)

WATER USE EFFICIENCY PROGRAM

Proposal solicitation Package

A. Cover Sheet

B. Scope of Work

1. Executive Summary

The Stevinson Water District, (SWD), located riparian to the Merced and San Joaquin River, has significant contractual and appropriative surface water rights from the Merced River water shed. SWD delivers surface water to their district as well as a neighboring district, the Merquin County Water District (MCWD), pursuant to contractual obligations. The SWD delivers surface water to other districts and individuals not under any contractual obligation. Both districts, SWD and MCWD, lie under a high water table. Soil productivity is poor in many areas due to salinity problems associated with high water table. Both districts desire to use groundwater more than they presently do. Both districts participate in a local groundwater management plan, as required by AB 3030, named Merced Area Groundwater Management Pool Interests. (MAGPI)

Both districts control 35 wells. (13 in SWD and 22 in Merquin WD) Due to the lower cost of surface water, these wells experience relatively little use and have become inefficient due to this lack of use and maintenance. Soil productivity has declined as a result. The crops primarily grown in these districts are corn, alfalfa and irrigated pasture. Twenty years ago there were lima beans, spinach, sugar beets and sweet potatoes grown in these districts. Today very little cropping diversity is apparent. Both districts could benefit from refurbishment of existing wells, improvement in pump efficiency, and locating groundwater in productive areas where wells do not exist.

2. Local, Regional, Bay Delta Need For Project

From the local perspective, the proposed project would increase over-all water supply within the districts through conjunctive use. Increased supply would come with more efficient use of both ground water and surface water. Continued application of surface water has left portions of both districts with ground, which is non-agricultural, due to soil pHs above 10. There has been a quantifiable loss of ag production in last 20 years.

Increase use of ground water would lower water table and improve drainage. Improved drainage would increase soil productivity.

In addition, increased ground water application on district ground would make surface water available for sale to programs like the CalFed Environmental Water Account. The proposed project meets critical local objectives by improvement of soil productivity through improvement of drainage. The proposed project will be working in conjunction with other efforts by SWD to increase efficiency of water use and water quality, such as pipelining, reservoir improvements, wet land enhancement and restoration projects. The proposed project would meet Bay-Delta objectives by making surface water available for beneficial ecosystem restoration projects such as the CalFed Environmental Water Account.

3. Nature, Scope and Objectives

Our project would entail three phases. Phase 1, feasibility phase, has been completed. Pump contractor has performed pump tests and has prepared a pump evaluation report at applicants' request. (Summary enclosed, Attachment 1) Well performance has been evaluated using well driller reports, current and past pump testing to formulate, within localized ground water basin parameters, expected ground water production. Well drilling reports, pump testing, depth of well casing, size of well casing, age of well, levels of perforation, and strata of water bearing soil formations were considered in the assessment of well efficiency. Well examination in this manner has identified well inefficiencies and certain well sites have been recommended for treatment to increase production.

Phase 2 would entail well refurbishment and pump corrections as recommended. During this phase, wells would have their pumps removed, cameras would record the condition of the well casing (video scanning). Levels of plugged perforation and possible mineralization of the perforation would be identified. Options for well treatment would be recommended, which include air bursting, primer cord treatment, brushing out well casings and pressure washing with approved chemicals. After treatment, wells would be developed, using pump development techniques to determine optimum production at particular depths. Pump modifications would then be made to enable pumps to operate at optimum efficiency.

Phase 3 would entail test hole drilling to locate productive ground water areas for subsequent drilling of new wells. In this phase, applicants only would seek to identify productive groundwater areas and applicant would install new wells, in locations and at depths recommended.

Technical Merit, Feasibility and Assessment

4. Methods, Procedures, and Facilities.

Applicant has used a licensed pump contractor, with 52 years of experience in pump production and efficiency testing, throughout the feasibility phase of the project to assist in identifying well production inefficiencies within both districts. Pump contractor has experience within the subject area and has made reasonable assessment of groundwater basin parameters. Applicant will use licensed well treatment company and pump contractors to perform the selected well and pump improvement procedures recommended. Applicant will use licensed well driller to groundwater testing.

5. Schedule

Phase 1, the feasibility phase, has been completed. Well treatment recommendations have been made. Phase 2, well treatment and pump improvements, would take two to three months. Pump improvements would take place post treatment and after wells have been developed to determine optimum production at the optimum depth. Phase 3, test hole drilling, could be completed within one month. The entire project could be completed within 4 months, so one report or end of project report might be sufficient.

6. Monitoring and Assessment. Applicant will closely monitor both Phases 2 and 3. Throughout Phase 2, the treatment phase, when results develop that the continued treatment is not practical or conditions exist which are detrimental to condition of the well or the purposes of this project, the process would stop on that particular well or step in the procedure. Everyone's experience (pump contractor, water well treatment company, and

applicant) will be used as a resource in determining the scope of individual well treatment with the final decision made by applicant. Detailed information and video recording for each well will be kept on file for future reference.

C. Outreach, Community Involvement, and Information Transfer.

1. Outreach to disadvantage communities.

Merquin Country Water District is an economically challenged community, with a low annual income per capita. Its population is approximately 250 people. The average size of parcel is 20 acres. The local elementary school ranks low county wide in testing due in part to a high mobility rate. Merquin District lands are also challenged economically owing to high water table, poor drainage and continued surface water application. Soil ph is high and cropping patterns are salt tolerant. They need to use well water to lower the water table, which will improve drainage. Well operation is more costly than surface water and it is not economically feasible for their customers in many cases. Stevinson Water District proposes to reimburse Merquin for groundwater pumping charges in excess of the cost of surface water, provided Merquin will pump groundwater when requested, wherever feasible and where there is not a significant adverse impact to soil or groundwater overdraft. This project will enhance drainage without increasing the cost of water to Merquin. Stevinson will be able to make water available for sale to outside customers at a price that will enable Stevinson to pay the increased cost of Merquin groundwater. This project will answer Merquins need for improved soil productivity and drainage within their ability to afford to deal with those needs. This project addresses the needs of the local community.

2. N/A

3. Disseminating and Promoting the Project.

Stevinson and Merquin Districts will be developing a water agreement that will formalize all the above conjunctive water use between the two districts. There is at this time agreement in principle for this project to go forward. Both districts desire to improve their total water resources so that they may be put toward their best use.

D. Qualifications of Applicants

1. Resume of Project Manager: Robert D Kelley Jr.

President/Director of Stevinson Water District since December 6, 1976. His duties include maintaining the S.W.D., which supplies water to approximately 3900 acres within S.W.D. The S.W.D. operates 9 riparian lift pumps and 13 wells within their district. Mr. Kelley oversees all aspects of water distribution including holding meetings, paying bills, making budgets and seeing that the district equipment is kept in good working condition.

President of East Side Canal & Irrigation Company since December 22, 1988. His duties include maintaining the E.S.C.&I. Service Area. The E.S.C. is 26 miles long, supplying irrigation water to approximately 5800 acres within Merquin County Water District, (average Merquin water sales – 18,000 acre-ft), and 16,900 acre-ft out of district. The E.S.C. operates 2 lift pumps. Duties include all aspects of water distribution, holding meetings, paying bills, making budgets and seeing that the equipment is kept in good working order. The S.W.D. and the E.S.C. run on a combined operating budget of \$262,000.

President of James J. Stevinson Corp. since December 1989. J.J.S Corp. is an agribusiness in dairy farming, beef production, almonds. J.J.S. Corp and its subsidiaries, E.S.C. and Flying H. Partnership operate 10,000 acres of dry and irrigated agricultural ground within the confluence of the Merced and San Joaquin Rivers. Duties include management of all divisions of agribusiness; including crop production, milk production and livestock production.

D.2. Contractors :

Pump Contractor

Anderson Pump Company,
P.O. Box 906
Chowchilla, CA 93610
State Contractors License Class A, C 57
C 57, C 61, D 21 In Business 52 years

Well Treatment

Water Well Technology Inc.
P.O. Box 519
Fair Oaks, CA
State Contractor License C 57
Cal-Osha License in Blasting & Explosives

Well Driller

Calwater Drilling Co. Inc.
300 S Kilroy Rd.
Turlock, CA.
State Contractor license # 434218

E. Costs and Benefits

1. Budget Summary

	<u>Water Grant</u>	<u>Applicant</u>	<u>Total</u>
a. Salaries and Wages	0	\$3,000	\$3,000
(Labor to organize, monitor and mitigate where necessary work of contractors)			
b. N/A	c. N/A	d. N/A	
e. Services/Consultants			
Feasibility Study- Pump Test and Pump Evaluation	0	\$11,000	\$11,000
Pump Contractor	\$11,000	\$17,500	\$28,500
Well Treatment	\$11,250	\$ 3,750	\$15,000
<u>Well Driller</u>	<u>\$19,500</u>	<u>\$ 6,500</u>	<u>\$26,000</u>
Total Estimated Costs	\$41,750	\$ 41,750	\$ 83,500

(Applicant proposes 50/50 % cost share for reasons explained under **E. Costs/ Benefits** portion of the application)

2. Budget Justification

Phase 1 Cost projection Feasibility Study. Applicant paid **\$11,000** for testing and pump evaluation report. 33 wells were tested from January 29-Feb. 2 in both districts and pump evaluation report was prepared. Historical information was collected; including, but no limited to, well driller's report and previous years pump test records. Each well was assessed within its local expected groundwater production parameter. Individual wells were selected for treatment based upon expected increase production to historical levels within localized parameters, assuming well has necessary water bearing soil strata and perforation in that area. 10 wells were recommended for treatment, 7 in MCWD and 3 in SWD. However, MCWD tax assessment is to be used for well maintenance and therefore grant moneys can not acquired for well refurbishment within MCWD. SWD does not have any well maintenance tax, and is not prohibited in applying for cost share grant funding and 3 wells will be applied for well refurbishment.

Phase 2 Cost projection-----Well Treatment

a. Video scanning of well. Procedure which entails videocassette of well with computerized log, which depicts points of interest found in well. Narrative report will summarize findings and recommendations for treatment, at a cost of **\$500.00** per well.

b. Well Treatment Options

(1) Air jetting/ steel wire brushing/ pressure washing with approved chemicals **\$4,000.00** per well. This includes pulling, reinstalling pump and treatment.

(2) Vibe cleaning with primer cord to fracture and reopen outer formation plugged by mineral deposits (sole treatment). Includes pulling and reinstalling pump. **\$2,700.00** per well

(3) Vibe cleaning and Air jetting (options (1) & (2)) **\$5,000.00 per well**

The scope of well refurbishment in phase 2 will depend upon what is found when the well is video scanned. For purposes of budgeting we will assume an average treatment per well of **\$4,500 per well plus \$500 per well video scan.**

With the 10 wells recommended for treatment, well treatment would cost ($3 \times \$4,500.00 = \$13,500.00 + 3 \times \$500.00 = \$1,500.00$)

Total Well Cost Projection Treatment \$15,000.00

Pump Improvements. This requires well development to determine new pumping production at what level. Recommendations will be made for pump hp, pump bowl specifications and settings, as well as any repairs necessary to pump column itself. Using average historical the costs this portion of phase 2 would be \$3,500.00 well development and \$6,000.00 for pump improvements. Again with the 10 recommended wells to be improved, this portion of phase 2 would total

(\$9,500.00 x 3) **\$28,500.00**

Total Cost for Phase 2 \$43,500.00

Phase 3 Cost Projection

Test hole drilling costs \$2600.00 per location. 10 locations would be selected.

The test hole cost projection would be \$26,000.00

3. Benefit Summary

Primary Benefits. Project purposes to improve present groundwater production and define future groundwater resources. Within the Stevinson District, there would be an expected increase of 1900 gpm amounting to 4.3 cfs through well treatment. The well treatment phase will improve well production and permit improved conjunctive use within the economic means of Stevinson and Merquin Districts. For every acre-ft generated from groundwater, said acre-ft would be available for sale to outside customers such as Cal Fed. This program together with other water efficiency improvements, such as pipeline improvement, ditch lining and reservoir improvement, could enable the Stevinson Water District to market approximately 10,000 acre ft annually.

SWD's principle landowner, James J. Stevinson a corp., is in process of wetland enhancement and improvement projects on 1500 acres of district lands in cooperation with U.S. Fish and Wildlife, the North American Wetlands Conservation Council, and Ducks Unlimited. Additionally, SWD is in process of reservoir improvements with these same partnerships. The resulting improvements will create water management improvements, which will increase the quality, quantity and timing of downstream water releases to the river systems. The resulting improvements will greatly enhance to aquatic ecosystem of the Merced and San Joaquin River system. **(Completed Quantifiable Objective)**

- b. Secondary project benefit would be improvement of drainage resulting from improved conjunctive use. This will improve soil productivity; enabling cropping patterns which return greater net income per acre. Such crops could be permanent crops such as almonds and walnuts. This would permit improved income per capita and the standard of living benefits that go with it.

4. Assessment of Cost Benefits.

a. Analysis Assumptions

1. During feasibility phase within SWD, 3 wells were identified with recent historical production declines and are within expected groundwater production parameters greater than their present levels. After treatment, well production is expected to increase to their historical levels. Actual increases will only be determined once wells have been developed. Pump improvements will generate the most production at the greatest power efficiency.
2. Average treatment cost per well. Project assumes most wells will require both vibe-cleaning (primer cord) and air jetting/brushing and pressure washing. Because wells have seen little use, they most probably need a full array of treatment options. There is considerable expense in pulling and reinstalling pumps (\$1500.00), and the addition of vibe cleaning to the process of air jetting, etc., would only be an extra \$500.00. Project assumes average treatment cost of \$4,500.00 plus \$500 for video scanning. Actual well treatment will depend on recommendations made after video scanning takes place.
3. Pump Improvements. We assume \$6,000.00 per treated well. Actual costs will depend on recommendations made after development. Included in this process would be consideration of bowl type and settings to maximize efficiency. Estimate of repairs is based on historical averages per pump for this area.

b. Current Dollar Cost

1. **Cost of project** has been expressed in current dollars as the project will take less than one year.

2. Primary Benefit Assessment

(a). Conjunctive use as described will permit expanded use of groundwater within Merquin District, without increasing their present water costs significantly. They will continue to benefit from ample water resources even during drought years. This conjunctive use program as described would enable 10,000 ac ft of water to be marketed through the existing conveyances of the Merced and San Joaquin Rivers. It is through the marketing of these waters that enables Stevinson and Merquin to use the groundwater resources they

have. The quantity of water and its' value made available is much greater than the incremental water and it's value generated through well refurbishment described in this project.

For purposes of this benefit assessment discussion, applicant will describe both **incremental water benefit** and **increased water made available for market out of district.**

This **incremental water** resource for SWD would be 4.3 cfs or 8.57 ac ft/day or 524 ac ft annually, assuming pumping 40% of time and a 5 month season. (*8.57 ac ft/day x 30.6 day/mo. x .4 use factor x 5 month season*) Development of 4.3 cfs of new groundwater from well and pump refurbishment at a market value of \$50.00 per acre foot equals \$26,200.00 annually.

Water available to market out of district, through conjunctive use of surface and groundwater, amounts to 10,000 ac ft annually and assuming a \$50.00 per ac ft value this would generate a benefit of \$500,000 annually. Location of good groundwater production areas, through drilling test holes (phase 3) will identify locations for future wells and increase the ability of SWD to market more water out of district. SWD presently participates in a local groundwater management plan (MAGPI) and would alter groundwater-pumping practices when detrimental to local interests.

	Quantified costs	Incremental water benefit	Out of District Water
(a)			
2001	\$83,500	\$26,200	\$500,000
2002	0	\$24,628	\$470,000
2003	0	\$23,150	\$441,800
2004	0	\$21,761	\$415,292
2005	0	\$20,456	\$390,374

(a) This 10,000-acre feet could annually be available to Cal Fed to meet its annual **Environmental Water Account** program needs.

3. **Secondary Benefit Assessment (non-quantified project benefits)**

- a. Use of ground water as a regular part of water resource would generate 10,000 acre ft of surface water that could be made available for export to San Joaquin River System. This 10,000-acre ft would provide flow to improve aquatic ecosystem in Merced River, primary spill location. **(Completed Quantifiable Objective)**
- b. Pump improvements made will be of increase efficiency and electrical use per ac ft pumped will decrease. This is very desirable given to shortage of power supply the state is currently experiencing.
- c. Increased conjunctive use throughout both districts will improve soil productivity through improved drainage. As cited before, this benefit will have a long term economic benefit

We have proposed a cost sharing ratio of 50/50 based upon the following factors: this project meets Grant objectives with a multi based long term solution that benefits local and regional needs with the implementation of cost effective water conservation of conjunctive use. With increased use of groundwater, it provides assistance to a disadvantaged rural community through improvement soil productivity within the economic means of community. Project increases surface water flow to the Merced and San Joaquin River thereby improving the aquatic ecosystem.

